

# Red Hat for cloud-native development

Application development is a complicated undertaking that requires a complex environment and tools. With many potential combinations of clouds, building and managing development infrastructure can be even more time-consuming and challenging than creating applications. Resources and productivity can be strained when IT teams have to build their own development environment in addition to developing applications.

In order to address these needs, the environment and tooling should provide:

**Ease of use.** An intuitive and user-friendly development environment and tools.

**Reliability.** A development environment that minimizes downtime.

**Interoperability.** A set of tools that are integrated and work well with each other.

**Cloud-native agility.** Tools that support a distributed, hybrid environment across public and private clouds.

**Scalability.** An environment and tools that scale easily and economically to handle changing customer demands and business needs.

## Why Red Hat Cloud Services?

Red Hat® Cloud Services is a family of managed platform, application, and data services. These services accelerate the development and delivery of cloud-native applications. Red Hat hosts and fully manages all components, with a dedicated professional team managing the infrastructure—including clusters and service configuration, maintenance, upgrades, and security features.

Red Hat Cloud Services provide your company, your IT team, and your developers multiple advantages, including:

### Accelerated development

With Red Hat Cloud Services, you and your team can start your software projects immediately and complete them quickly. Red Hat keeps the environment up and running, more secure, and up to date, allowing your teams to stay agile and focus on innovation.

Red Hat Cloud Services also include a range of tools like Apache Kafka and Red Hat OpenShift® API Management to help your development teams stay productive. Cloud services can give your organization the edge you need to speed time to market and surpass the competition.

### Reliable environment

Your developers need a solid foundation for building new applications. They need reliable infrastructure, and when you use Red Hat Cloud Services, Red Hat takes on that responsibility.

### Freedom to focus on your core competency

With hybrid cloud environments, infrastructure has become more complicated. Because development resources are limited, it no longer makes sense to cultivate in-house infrastructure expertise.

Many organizations do not want to dedicate resources to building and managing infrastructure when they can work on initiatives that impact business outcomes. With Red Hat hosting and managing the infrastructure, your team is able to focus on your core competency—the expertise your team brings to the market to differentiate your company—and gain greater return on investment (ROI) from development initiatives.

### **Cost efficient**

Cloud services are economical because they do not require a large upfront expenditure, and you save on the incidental costs of running the hardware such as power, space, and maintenance. With cloud services, you only have to pay for the resources you need.

### **Aligning IT with business goals**

The purpose of development is to meet business goals and keep the company strong. Cloud services empower line of business (LOB) stakeholders to access development technology through a self-service model to meet business objectives, bypassing lengthy IT processes.

## **7 reasons to choose Red Hat Cloud Services**

Red Hat products are vendor-neutral and work well on all clouds. Red Hat is devoted to open source technologies, always looking to the established communities for the latest innovations while building deep expertise.

Red Hat is a platform company with a strategy based on supporting multicloud and hybrid cloud challenges at the platform level.

The following are seven great reasons why you should choose Red Hat to deliver a fully managed cloud-native development environment.

### **1. Unified platform for building applications**

One advantage of Red Hat Cloud Services is that it forms a unified platform for building applications. Red Hat OpenShift is natively integrated with leading clouds, and supporting Red Hat application services are integrated with the platform and each other to work seamlessly in a highly distributed, hybrid cloud environment.

Cloud hyperscalers also offer services, but none of them offers a unified platform like Red Hat's. The hundreds of services they offer are not designed to work together across any cloud. Each service is provided by a different cloud partner, leaving the user to determine which services to use and how they can best work together.

### **2. Cloud-agnostic services**

The freedom to use your own combination of cloud providers is essential to avoid being locked into one cloud provider's stack. Developers can experience frustration and loss of productivity from having to work in new and unfamiliar environments.

Red Hat is cloud agnostic, giving you the freedom to use multiple clouds in any combination—Microsoft Azure, Amazon Web Services (AWS), IBM, Google, and on-premise systems—while enjoying a consistent developer-first experience across public and private clouds.

### 3. Streamlined developer experience

Red Hat delivers a streamlined developer experience, from design to production. Red Hat Cloud Services deliver the following developer-centric features:

#### **Self-service provisioning.**

Red Hat provides developers and LOBs with self-service capabilities, to eliminate waiting to be provisioned by IT. Using Red Hat Cloud Services, the developers are empowered to self-provision what they need, when they need it. All Red Hat services and components are accessible to developers.

#### **Quick starts.**

Red Hat Cloud Services offer quick starts to help the developer get started. Quick starts are guided step-by-step instructions for completing common development tasks. Designed to make development teams more productive, quick starts reduce the learning curve and support new technology adoption.

#### **Developer-first interface.**

Red Hat Cloud Services use a developer-first interface that keeps developers focused on application innovation, not the underlying infrastructure. In the Red Hat user interface (UI), user features are separated from administrative tasks so developers only see the tools and functionality they need to build, test, and deploy applications. Because the services are completely managed by Red Hat, all of the administrative features have been removed from the developer's view.

#### **Developer-centric tooling.**

Red Hat Cloud Services focus on the developer experience by providing tooling designed to reflect the developer's point of view, and ultimately help the developer be more productive.

#### **Consistent experience.**

Because Red Hat Cloud Services are cloud agnostic, the customer can use multiple cloud providers of their choice, both public and private. Red Hat provides a consistent, seamless developer experience across any selection of clouds, with uniform development environments, monitoring, metrics, and alerts across all Red Hat services.

#### **Service binding operators.**

Without Red Hat, it can be challenging to use an Apache Kafka service, connecting your workload to the Kafka topics so that your application can produce and consume data for event-based messaging. This connection typically requires custom code. Service Binding Operators, a developer-friendly feature available to support Red Hat OpenShift Streams for Apache Kafka, make it easy to connect your workload to Kafka topics across hybrid cloud environments with cut and paste functionality.

### 4. Fully managed services

While it may not be too difficult to download and install Kubernetes, Apache Kafka, and the other technologies you need for a productive development environment, preparing these services for production requires significant time and effort. In fact, 75% of enterprise users identify complexity of implementation and operations as the top obstacle to Kubernetes adoption.<sup>1</sup>

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<sup>1</sup> *The New Stack. The State of the Kubernetes Ecosystem. 2nd ed., 2021.*

Red Hat Cloud Services takes responsibility for the infrastructure to maintain reliability and minimize downtime. For managed services, Red Hat guarantees an SLA of 99.95% uptime. Services are always up to date, upgraded, and more secure, so your developers can concentrate on innovation.

Red Hat Cloud Services are backed by Premium Support, enterprise-grade support from top experts in the cloud and Kubernetes communities.

## 5. Building intelligence into the application

Artificial intelligence (AI) and machine learning (ML) have become critical for organizations as they build applications that convert data to business value. Red Hat OpenShift Data Science, a platform to perform complex AI/ML modeling, accelerates the delivery of intelligent applications. With this solution, data scientists and developers can rapidly develop, train, test, and iterate ML models.

## 6. Red Hat experience

Trust is essential when choosing a cloud services provider. Do you trust the provider to deliver a reliable and security-focused platform, and a set of services that are developer-centric and easy to use? Do you trust the provider to enhance your development speed and productivity, and help you differentiate your applications in the market? Do you trust the provider to deliver high-value technical support as though they are part of your team, aligned with your business objectives?

Managing the infrastructure for a development environment is a challenging task, and Red Hat is specialized in this area. Red Hat is a respected leader in bringing open source to the enterprise, including brands such as Linux®, JBoss®, Apache Kafka, and Kubernetes.

Red Hat continues to run an implementation of enterprise Kubernetes, respected across the industry, with a list of customers including [90% of the Fortune 500](#). While fully embracing Kubernetes and bringing it to the world, Red Hat sees the evolution of middleware as more than just running in a container.

## 7. Opinionated cloud services

All Red Hat Cloud Services are delivered with Red Hat's expertise built in. Much of the challenge of IT infrastructure is about making the right decisions. Unless your company's specialty is researching and managing development environments, or your development team enjoys tweaking every knob and dial, these are not how you want to invest your limited time and resources. A cloud services provider can cover infrastructure decisions, while your development team makes the critical decisions about how to differentiate your own applications.

Red Hat's "opinionated" cloud services make application development faster and more efficient, alleviating the burden of making the underlying infrastructure work. The following are examples of how Red Hat's opinions impact our cloud services:

### Creating the stack.

Red Hat includes additional components into the services—the right technology to meet your needs—and builds them into the stack. This includes single sign-on (SSO), metrics, monitoring, and alerts.

### Configuration.

Red Hat configures the platform and application with its many options—knowing how to maximize overall performance. This saves development teams from having to develop deep infrastructure expertise.

## **Administration.**

Red Hat hosts and manages cloud services so they are scalable and support a multicloud environment. For example, users do not need expertise in administering Kubernetes or Kafka at scale to take full advantage of Red Hat Cloud Services.

## **The Red Hat Cloud Services Portfolio**

Red Hat offers fully hosted and managed cloud services across hybrid infrastructure. Red Hat Cloud Services shift operational support and accountability from the user to Red Hat and the cloud providers. When it comes to the infrastructure, Red Hat takes care of everything—installation, configuration, updates, upgrades, security patches, compliance, monitoring, networks—all the mundane time-consuming tasks and responsibilities that would otherwise eat away at your productivity and slow down your development team.

Red Hat Cloud Services offer the following foundational technologies:

### **Red Hat OpenShift**

Red Hat Cloud Services start with Red Hat OpenShift platform services, the foundation for building cloud-native applications. Red Hat OpenShift is a hosted and managed enterprise Kubernetes platform backed by all the application services you need. It is cloud agnostic, meaning Red Hat OpenShift runs natively on your choice of clouds and delivers a consistent experience.

### **Red Hat OpenShift Streams for Apache Kafka**

Based on the open source Apache Kafka project, Red Hat OpenShift Streams for Apache Kafka lets development teams incorporate streaming data into applications without having to build and manage a Kafka service at scale—a complex and time-consuming endeavor.

Apache Kafka, the next generation of messaging, is the de facto solution for real-time streaming data. Kafka is central to an event-driven architecture, delivering high volume, speed, and reliability to distributed applications.

As a managed and hosted Kafka service—fully integrated with Red Hat OpenShift and Red Hat’s application cloud services—Red Hat OpenShift Streams for Apache Kafka gives developers freedom to focus on building innovative applications more quickly, without concern for the underlying data collection and processing requirements.

### **Red Hat OpenShift API Management**

Red Hat OpenShift API Management is a fully managed service offering application programming interface (API) life cycle management so developers can build, prototype, deploy, monitor, and share APIs from a unified, developer-friendly interface. The service also includes a fully functional API gateway and Red Hat’s SSO technology.

Red Hat OpenShift API Management accelerates time to value for APIs and reduces the cost of delivering and scaling API-first, microservices-based applications.

### **Red Hat OpenShift Data Science**

Built on the open source Open Data Hub project, Red Hat OpenShift Data Science gives data scientists and developers a platform for building intelligence into applications with AI and ML.

OpenShift Data Science offers a flexible, customizable alternative to prescriptive AI/ML suites from individual cloud providers. It provides self-service on-demand infrastructure, open source tools, a sandbox, and workflows for collaboration. Red Hat OpenShift Data Science provides a subset of more than 30 tools found in the upstream Open Data Hub project. Red Hat makes regular updates to the tools through the managed cloud service, removing the burden of integration and testing.

Instead of modeling sophisticated analytics in a separate environment, users can build AI and ML directly into the application using the same platform, so they can code with confidence and move into production faster. As a fully managed and hosted service, Red Hat OpenShift Data Science helps development teams get intelligent applications to market faster—where they can differentiate the company's applications and deliver competitive value.

### Red Hat OpenShift Service Registry

Red Hat OpenShift Service Registry lets development teams publish, discover, and communicate topics using well-defined data schemas with Apache Kafka, and also works with Red Hat OpenShift API Management. OpenShift Service Registry supports event-driven and API-driven applications with support for a wide variety of message schema types.

### Red Hat connectors

Coming soon to Red Hat OpenShift Streams for Apache Kafka, Kafka connectors are ready-to-use components that help developers import and export data to and from external systems directly into Kafka topics.

### Conclusion

Some development organizations have all the resources needed to build and manage their own development environment. But other organizations need to conserve resources and concentrate on the aspects of development that differentiate the company in the marketplace—such as innovating new applications and features. The proactive solution to these challenges is Red Hat Managed Cloud Services. By putting your trust in Red Hat, you can jump start projects, accelerate the development pipeline, and free your team to bring your products to market faster.



### About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

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